

CAMPONOTUS (KARAVAIEVIA) TEXENS SP. N. AND
C. (K.) GOMBAKI SP. N. FROM MALAYSIA
IN COMPARISON WITH THE OTHER KARAVAIEVIA
SPECIES (FORMICIDAE: FORMICINAE)*

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INTRODUCTION

Two weaving species of *Camponotus*, collected in a rain forest in Malaysia in 1984 (Maschwitz, 1985), have turned out to be new species of the subgenus *Karavaievia*. These are described below as *Camponotus (Karavaievia) texens* and *C. (K.) gombaki* and are compared with the other species of the subgenus *Karavaievia* Emery (1925).

MATERIALS AND METHODS

The two colonies of *Camponotus texens* were found by U. Maschwitz: one of the Gombak Valley, about 27 km north of Kuala Lumpur, and the other one in the region of Kuantan, on the east coast of Malaysia. Of *C. gombaki*, only one colony was discovered in the Gombak Valley. Twenty workers of each of the colonies were used for the descriptions that follow. The description of the sexuals for *C. texens* was based on 5 males from the colony of Kuantan and 5 females from the Gombak Valley. Only 5 females, but no males, were available for *C. gombaki*.

One worker of *Camponotus (Karavaievia) overbecki* was made available to the author by Dr. Baroni Urbani from the Santschi Collection in Basel (Switzerland). Three workers of this species were used for classification from the Forel Collection in Geneva (Switzerland) along with three workers and two dealate females of *Camponotus (Karavaievia) exsectus* from the Emery Collection in Genoa (Italy). However, specimens of *C. (Karavaievia) dolichoderoides* were not available from either the Forel or Emery Collections.

*Final copy of manuscript received by the editor October 14, 1985.

The examinations of *C. texens*, *C. gombaki* and *C. overbecki* were made with the aid of a binocular microscope; the measurements of the animals were made at a magnification of 65X. Scanning electron micrographs of *C. texens* and *C. gombaki*, presented as part of this article, were taken by a Hitachi S 500.

The following abbreviations are used below (measurements as in Bolton, 1977):

TL: total length. The total outstretched length of the individual from the mandibular apex to the gastral apex.

HL: head length. The straight-line distance between the anterior clypeal margin and the mid-point of the occipital margin in full-face view.

CI: cephalic index = $(HW \times 100)/HL$

SL: scapus length. The straight-line length of the antennal scape excluding the radicle.

SI: scapus index = $(HW \times 100)/SL$

PW: pronotal width. The maximum width of the pronotum in dorsal view.

OD: ocular diameter. The maximum width of the eyes.

All measurements are expressed in millimeters.

The critical reading of the manuscript by Dr. C. Baroni Urbani and Dr. P. van Voris is gratefully acknowledged.

RESULTS AND DISCUSSION

Characteristics of the Subgenus *Karavaievia* Emery 1925

The description of the subgenus *Karavaievia* follows that of Emery (1925). This description is mainly a listing of characters which are partly superficial but which serve to distinguish this subgenus from all the others (Emery, 1925). A thorough diagnosis of '*Karavaievia*' would require a revision of the whole genus *Camponotus*, which is urgently needed but which is not the intention of this paper. Thus, the subgenus *Karavaievia* is in a preliminary state like the classification of the genus *Camponotus* itself.

According to Emery (1925) *Karavaievia* is closely related to the subgenera *Myrmamblys*, *Myrmoteras*, and *Myrmoplatys*. The most important difference between these subgenera and *Karavaievia* is the nearly complete absence of any dimorphism in the worker caste of the *Karavaievia* species. Specific for *Myrmoplatys* is the scapal

insertion near the midlength of the frontal carinae, the depression of the anterior part of the head and the relatively short flagellar segments. *Myrmotarsus* includes massive and large species with depressed tibiae. Workers of *Myrmamblys* have heads that are longer than wide with parallel sides. The characteristics of *Karavaievia* are as follows:

Workers

Apart from minimal variability, all workers are monomorphic and about 5.5 mm long. Head trapezoidal, with rounded occipital corners. Head sides convex, occipital margin more or less concave, and anterior margin mostly straight. The eyes are situated behind the midlength of the sides of the head. Length of head subequal to its width (i.e. CI \sim 100). Clypeus narrow, convex, and without median carina. Its anterior margin almost straight, and in the middle third slightly concave. Frontal carinae relatively short and subparallel to moderately divergent. Mandibles short, with lateral borders strongly curved and 5 teeth on each masticatory border. Antennal scapes projecting beyond the occipital margin by about one third of their length. Pedicel longer than the following flagellar segments; apical flagellar segments slightly thickened. Alitrunk with a deep impression (metanotum) between promesonotum and propodeum, and two raised stigmata at the deepest point of the impression. Petiolar scale tapers to a transverse ridge.

Females

Total length about 11 mm. Head about twice as wide as that of the workers, and with less convex sides. Anterior clypeal margin with a median semicircular excision. Apical flagellar segments not thickened.

Males

Anterior clypeal margin straight. Mandibles with only one strong, apical tooth. Total outstretched length about 6.5 mm.

Camponotus texens sp. n.

Derivatio nominis: The species name is derived from the Latin word 'texere' = weave.

A. Holotype ♀: TL 5.4, HL 1.26, HW 1.29, CI 103, SL 1.51, SI 85, PW 0.77, OD 0.31.

Frontal carinae extend to about midlength of head. Apart from a slight projection behind the scapal insertion, they are straight and slightly divergent (Fig. 1a). Anterior clypeal margin almost straight, but in the middle third weakly concave, with slightly indented edges. Eyes are situated behind the midlength of the sides of the head; their maximum diameter is 0.31 mm, or about 0.24 HW.

Head and alitrunk dark brown; gaster and petiole dirty yellow. Antennae and legs, including tibiae, dark brown, while apical flagellar segments, tarsi and front of head are dirty yellow like the gaster. Surface of head, alitrunk and gaster weakly shining. Accordingly, cuticular punctures and reticulated sculpture (SEM) are weak (Fig. 1a, c). Gaster with an imbricate sculpture (Fig. 3b), which is much more pronounced in gaster of males (Fig. 3c). Yellowish white, decumbent pubescence on the whole body, including scapes and legs. Longer erect, yellowish white hair especially on clypeus, but also on rest of head, alitrunk and gaster. Propodeum, seen in profile, broadly rounded and slightly higher than promesonotum. Dorsal part of the propodeum convex, descending part straight. In the lower fifth, the declivity is slightly concave.

Paratype ♀♀: TL 5.1–5.8, HL 1.26–1.38, HW 1.29–1.48, CI 98–106, SL 1.43–1.57, SI 85–100, PW 0.77–0.92, OD 0.31–0.39 or 0.24–0.31 HW (20 measured).

Holotype ♀, Western Malaysia: Pahang, near Kuantan, 20.2.1984 (Naturhistorisches Museum, Basel).

Paratypes: 20 ♀♀ with the same data as holotype (2 in British Museum (Natural History), London; 2 in Museum of Comparative Zoology at Harvard University; 2 in National Museum of Malaysia, Kuala Lumpur; 2 in Museo Civico di Storia Naturale, Genova; 12 in collection of the author).

B. Gynetype (♀): TL 11.3, HL 2.33, HW 2.24, CI 96, SL 2.16, SI 104, PW 1.76, OD 0.69.

Frontal carinae extend about to midlength of the head. Apart from a lateral projection beyond the scapal insertion, they are almost straight and only slightly divergent. Clypeus wider than that of worker (0.67 mm as against 0.50 mm). Its anterior margin shows a median semicircular excision, with indented edges (Fig. 1b).

Mandibles strong, distinctly rounded on outside and with 5 subequal teeth on inside. Frontal area not clearly delimited and hardly more shining than surroundings. Head and alitrunk black, tergites

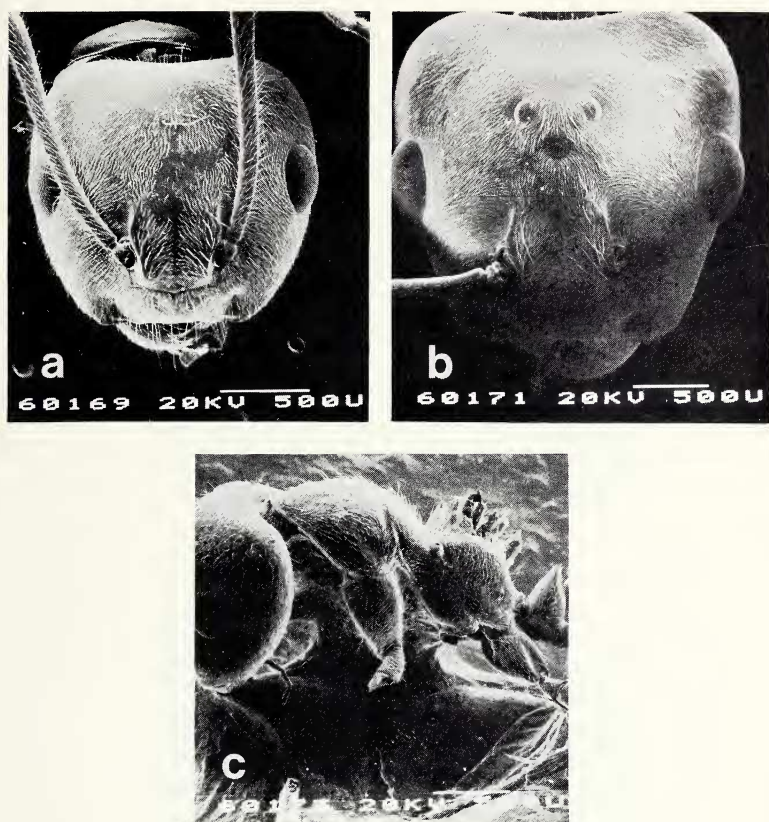


Fig. 1. Scanning micrograph of *Camponotus texens*: a, head of worker; b, head of female; c, alitrunk of worker in profile.

of gaster dark brown; sternites lighter brown; front of head, distal antennal flagellum and legs yellow brown. Wings yellowish, veins yellow brown.

Head, alitrunk and gaster covered with fine, light yellow, decumbent pubescence. Longer erect hairs distributed over the whole body. Eyes distinctly larger than those of workers and situated behind the midlength of the sides of the head. OD 0.69 mm, or about 0.30 HW. Petiole with a broad base, tapering toward the apex into a narrow ridge, seen from the side.

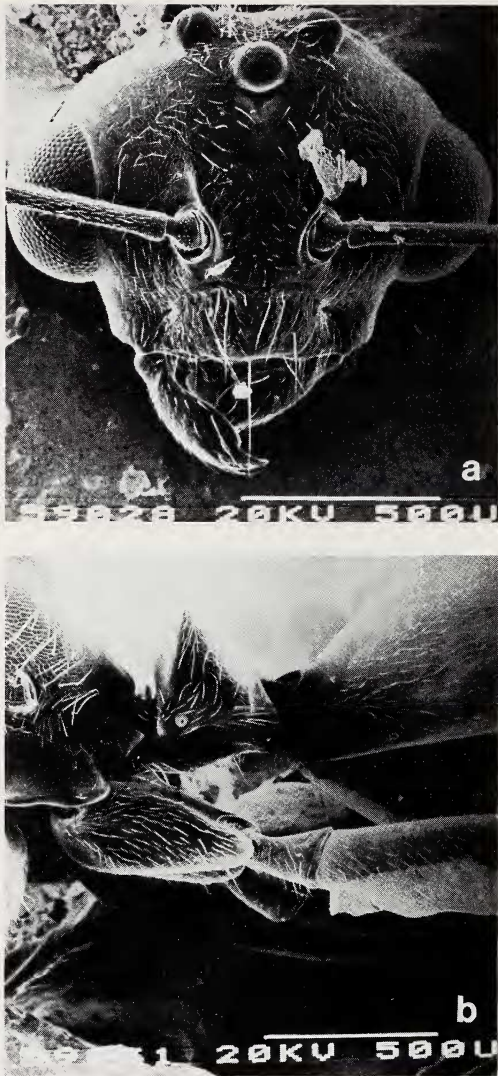


Fig. 2. Scanning electron micrograph of *Camponotus texens* male: a, head; b, petiole of alitrunk and gaster in profile.

Paratype ♀♀: TL 10.8–11.3, HL 2.29–2.46, HW 2.20–2.40, CI 95–98, SL 2.12–2.19, SI 101–107, PW 1.72–1.92, OD 0.69, OD/HW 0.28–0.31 (4 measured).

Gynotype, Western Malaysia: Gombak Valley, ca. 25 km north of Kuala Lumpur, 31.12.1982, U. Maschwitz leg. (Naturhistorisches Museum, Basel).

Paratypes: 4 ♀♀ with the same data as gynotype (collection of the author).

C. Allotype (♂): TL 6.7, HL 1.0, HW 1.02, CI 102, SL 1.00, SI 102, PW 1.32, OD 0.46.

The trapezoidal head nearly as wide as long (CI 102), with prominent convex eyes, extending to the upper end of the head sides. Occipital margin strongly convex with protruding ocelli (Fig. 2a); clypeus narrow (width about 0.17 mm) with straight anterior margin. Short frontal carinae sinuate, reaching back to midlength of head. Eyes very large; maximum diameter 0.46 mm, or about 0.45 HW. Scapes long, projecting beyond occipital margin of the head by more than half their length. Pedicel expanded at its distal end and thicker than following flagellar segments.

Head and alitrunk dark brown like scapes and legs; petiole and gaster lighter brown; antennal flagellum yellow brown. Wings yellowish with lighter brown veins. Decumbent pubescence on head and alitrunk thin, but denser on gaster; in addition, body covered with longer, erect hairs. Cuticular sculpture of head, alitrunk and petiole reticulated, that of gaster imbricated (Fig. 3c). Propodeal profile rounded, with weakly convex dorsal and weakly concave descending part. Petiolar scale triangular in profile, with a broad base tapering to a ridge (Fig. 2b). Ridge with slight median excision. Paratype ♂♂: TL 6.5–6.7, HL 0.86–0.92, HW 0.93–0.99, CI 96–108, SL 1.00, SI 93–99, PW 1.16–1.24, OD 0.43–0.46 (4 measured). Allotype, Western Malaysia: Gombak Valley, ca. 25 km north of Kuala Lumpur, 31.12.1982, U. Maschwitz leg. (Naturhistorisches Musaeum, Basel).

Paratypes: 4 males with same data as allotype (collection of the author).

***Camponotus gombaki* sp. n.**

Derivatio nominis: The name is derived from the Gombak Valley, in which the first and only colony of this species was found, and in honor of the 'Gombak Field Station of the University of Malaya,' where we worked during our research stay.

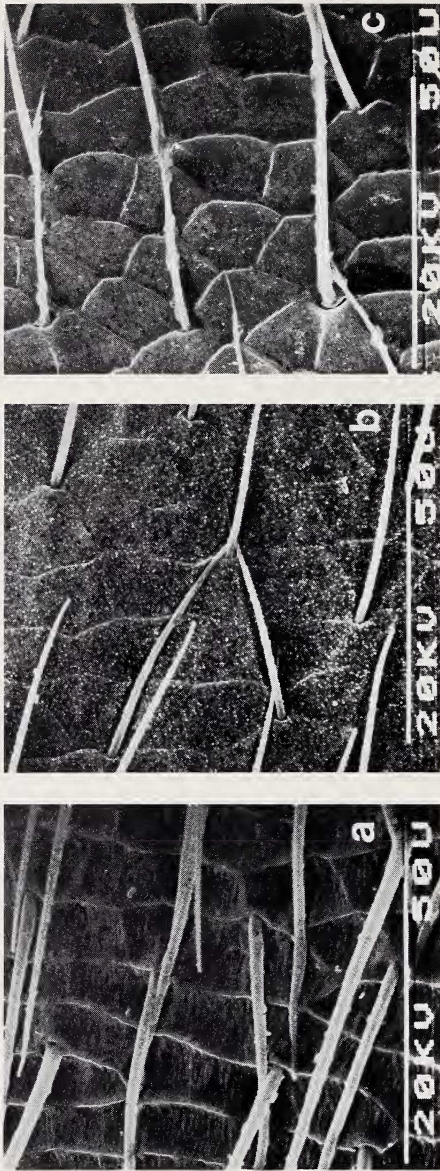


Fig. 3. Scanning electron micrograph of the cuticular structure of the gaster: a, *Camponotus gombaki* worker; b, *C. texens* female; and c, *C. texens* male.

A. Holotype ♀: TL 6.1, HL 1.46, HW 1.49, CI 102, SL 1.56, SI 96, PW 0.93, OD 0.34.

Frontal carinae slightly sinuate, reaching back to midlength of the head (Fig. 4a). Anterior clypeal margin almost straight, but in the middle third weakly concave. Eyes situated behind the midlength of the sides of the head, with maximum diameter of 0.34 mm or about 0.23 HW.

Head and alitrunk reddish brown, gaster dark brown, almost black. Petiole reddish brown at base, but dark brown in upper half. Legs and antennae, like head and alitrunk, reddish brown to top. Surface of head, alitrunk and gaster opaque, with very dense punctures, which appear elongated on the gaster. Cuticular structure under SEM regular reticulated on head and irregular reticulated on alitrunk; cuticular sculpture of gaster is shown on Fig. 3a. Yellowish white, decumbent pubescence less dense than in *C. texens* workers; yellowish white, erect, longer hairs occur mainly on forehead and vertex, less dense on alitrunk and gaster. Propodeum in profile broadly rounded (Fig. 4c, d) and lower than promesonotal dorsum. Dorsal part of propodeum convex, descending part slightly flatter. In the lower sixth, the declivity is slightly concave.

Paratype ♀♀: TL 5.6–6.4, HL 1.40–1.62, HW 1.44–1.72, CI 97–105, SL 1.56–1.62, SI 86–104, PW 0.92–1.04, OD 0.34–0.40, or 0.22–0.26 HW (20 measured).

Holotype ♀, Western Malaysia: Gombak Valley, ca. 25 km north of Kuala Lumpur, 15.2.1984 (Naturhistorisches Museum, Basel).

Paratypes: 20 ♀♀ with same data as holotype (2 in British Museum (Natural History), London; 2 in Museum of Comparative Zoology at Harvard University; 2 in Malaysia, National Museum of Malaysia, Kuala Lumpur; 12 in collection of the author).

B. Gynetype (♀): TL 11.4, HL 2.18, HW 2.24, CI 103, SL 2.38, SI 94.1, PW 1.92, OD 0.54.

Frontal carinae extend about to midlength of head. Apart from a lateral projection behind the scapal insertion, they are almost straight and hardly divergent. Width of clypeus subequal to that of *C. texens*. Anterior clypeal margin with semicircular excision (Fig. 4b). Mandibles strong, distinctly rounded on outside, and with 5 subequal teeth on inside. Frontal area clearly delimited and more shining than neighboring head parts.

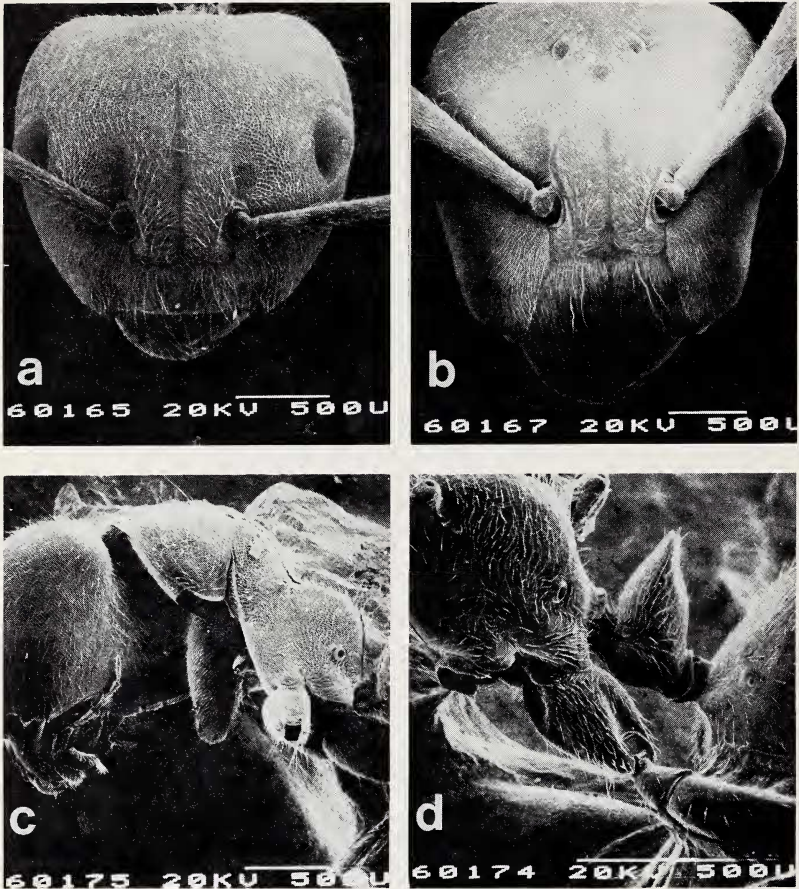


Fig. 4. Scanning electron micrograph of *Camponotus gombaki*; a, head of worker; b, head of female; c, alitrunk of worker in profile; d, petiole of worker, with parts of alitrunk and gaster in profile.

Head, alitrunk, petiole and legs reddish brown; gaster, antennae and mandibles dark brown. Wings yellowish, veins yellow brown. Body covered with short, yellowish white, decumbent pubescence; longer, erect, yellowish white hair is particularly dense on clypeus, but also on rest of body, including scapes and legs. Longer hair on alitrunk is less dense than in *C. texens* female. Eyes are situated behind the midlength of the sides of the head and markedly larger

than those of workers, but smaller than those of *C. texens* females; maximum diameter 0.54 mm, which is about 0.24 HW. Petiolar profile with broad base, which tapers to a transverse ridge and into a point, as seen from above.

Paratype ♀♀: TL 11.4, HL 2.21–2.23, HW 2.24–2.29, CI 103–104, SL 2.3–2.4, SI 94–98, PW 1.92–1.99, OD 0.58–0.62, OD/HW 0.24–0.25 (4 measured).

Gynotype, Western Malaysia: Gombak Valley, ca. 25 km north of Kuala Lumpur, 15.2.1984 (Naturhistorisches Museum, Basel).

Paratypes: 4 ♀♀ with same data as gynotype (collection of the author).

Camponotus overbecki Viehmeyer stat. n.

Camponotus dolichoderoides var. *overbecki* Viehmeyer 1915: 162.

Material examined: 1 syntype worker from the Santschi Collection (Naturhistorisches Museum, Basel) leg. Overbeck: Singapore. TL 5.8, HL 1.43, HW 1.56, CI 109, SL 1.61, SI 97, PW 0.88, OD 0.39.

Frontal carinae extend to about midlength of the sides of the head; as in *C. texens*, they are slightly divergent and—apart from a lateral projection behind the scapal insertion—straight. Anterior clypeal margin almost straight, but slightly concave in the middle third. Eyes are situated behind the midlength of the sides of the head; maximum diameter 0.39, which is about 0.39 HW.

Head and alitrunk reddish brown, gaster blackish brown with lighter anterior segment boundaries. Petiole, legs, tarsi, and apical antennal flagellum yellow. Head, alitrunk and gaster shining, less punctured than in *C. texens* and in particular in *C. gombaki*. Whole body covered with fine, yellowish white, decumbent pubescence; longer erect denser than in *C. texens* and in particular in *C. gombaki*. Propodeum in profile broadly rounded and slightly higher than promesonotal dorsum. Dorsal part of propodum weakly convex, descending part slightly flatter. In the lower fourth, the declivity is slightly concave.

On the whole, the differences between *C. gombaki* and *C. texens* are not exceeding those between *C. overbecki* and *C. dolichoderoides*. As *C. texens* and *C. gombaki* certainly belong to different species because of the differences in their behavior (Maschwitz et

al., 1985), there is no sufficient reason to continue designating *C. overbecki* as a variety of *C. dolichoderoides*. It is therefore made a species on its own. The female of *C. overbecki* is described by Viehmeyer (1915) from an isolated specimen as follows: head narrower and more elongated than that of worker; eyes larger and more convex than those of workers and situated in front of the midlength of the sides of the head. Clypeus slightly emarginate anteriorly. Dispersed, decumbent pubescence on the whole body. Female dealate and 6.5 mm long.

Body length of 6.5 mm is far smaller than that of any other known *Karavaievia* females. Head deviates markedly in shape and size, and eyes are situated in front of the midlength of the sides of the head and more convex than those of workers. This was not found in any other *Karavaievia* female. In contrast to all other *Karavaievia* females, clypeus slightly carinated and emarginated. These basic differences from all known *Karavaievia* females suggest that the female described by Viehmeyer is not a female of *C. overbecki*.

Males of *C. overbecki* as described by Viehmeyer (1915): Head with strongly convex eyes slightly broader than long, occipital margin strongly convex, anterior clypeal margin straight, mandibles with a large apical tooth. Propodeal profile with weakly convex dorsal and concave descending face; dorsal face with shallow, median, longitudinal furrow. Petiolar scale lower and slightly thicker than that of worker, tapering to a transverse ridge, which is slightly excised in the middle. Densely reticulated, front part of the body more opaque than gaster. Dirty yellow brown, gaster with indistinct narrow, dark bands in front of the posterior segment borders, femora and tibiae slightly darkened; wings yellowish with yellow brown veins. 6 mm in length.

Camponotus dolichoderoides Forel

Camponotus dolichoderoides Forel, 1911: 51. (Types not found, presumed lost.)

Description is translation of Forel (1911): workers 6 mm in length; strong, curved, shining mandibles, with 5 teeth and widely separated punctures. Clypeus without carina, anterior margin straight, and not or only weakly protruding. Frontal carinae little sinuate and hardly divergent. Scapal insertion close to the posterior clypeal margin. Head trapezoidal, with strongly convex sides, and nearly as

broad as long with maximum diameter in the posterior third. Occipital margin moderately concave; eyes situated close beyond the midlength of the sides of the head. Scapes project behind the occipital margin by about one third of their length. Apical antennal flagellum slightly thickened. Promesonotal dorsum broadly rounded with deep promesonotal suture. Deep impression between promesonotum and propodeum, with two raised stigmata on the ground. Dorsal propodeum in profile slightly convex, forming almost a right angle with declivity which is almost straight. Petiolar scale in profile cone shaped. Gaster oval, tibiae cylindrical, not thickened and without spines. Cuticular surface weakly reticulated and slightly opaque, covered with punctures which are particularly dense and elongated on gaster. Decumbent pubescence very fine, yellowish, distributed over the whole body, including tibiae and scapes, especially dense on gaster. Uniformly dirty yellow brown; tarsi, apical antennal flagellum and front head reddish to yellow red. Hayvep, Borneo.

Camponotus exsectus Emery

Camponotus exsectus Emery, 1901: 53. Syntype ♀♀ and ♀♀: Museo Civico di Storia Naturale, Genova (examined).

Original description (Emery, 1901): workers dirty yellow, shining, front head and gaster lighter, segment borders brownish, decumbent pubescence denser on head and alitrunk than on gaster. Body, including scapes and legs, covered with longer, whitish, erect hairs. Weak cuticular punctures on the whole body, those of the gaster elongated. Head rounded and convex. Clypeus weakly convex and not carinated; anterior clypeal margin with wide excision in the middle third, and indented edges. Mandibles strongly curved on outside and 5 teeth on inside. Frontal carinae almost straight, linea frontalis weak, but clearly visible. Scapes project beyond occipital margin by about one third of their length. Viewed in profile, pronotum and mesonotum form a curved line which is connected to the propodeal outline by an obtuse angle. Propodeal profile broadly rounded. Scale biconvex, tapering into a sharp transverse ridge. Length: 4-3/4 to 5-1/2 mm.

According to my own examination, workers are more shining than those of *C. texens*, but not as much as those of *C. gombaki*.

Erect hairs more numerous than in *C. texens*. Propodeal dorsum clearly higher than dorsum of promesonotum, and in profile more inclined than in *C. texens*, *C. gombaki*, and *C. overbecki*. Dorsal part of propodeal profile convex, descending part nearly straight. Frontal area clearly delimited.

Original description of female (Emery, 1901): darker than workers; sides, scutellum, propodeal dorsum, legs, and major part of gaster brown. Head and mesonotum opaque; pubescence very dense, in particular on gaster. Head trapezoidal, mandibles similar to those of workers; clypeus narrow with deep semicircular excision in the middle of the anterior margin, limited by protruding acute angles. Antennae strong, petiole similar to that of workers. Punctures on gaster weak and not elongated. Length 11 mm. Mentawai, Sipora.

According to my own examination, *C. exsectus* females are larger than females of *C. gombaki* and *C. texens*. HW 2.5, HL 2.5, PW 2.3. Frontal carinae less divergent than those of *C. texens* and *C. gombaki* females. Frontal area indistinctly delimited; mandibles reddish brown with black teeth; gaster shining.

Comparison of *Karavaivia* Species

The subgenus is characterized by morphological traits and possibly by behavioral characters, too. The common morphological traits include the subuniform size of workers, females and males, the shape of the head, the position of the eyes, the characteristic shape of frontal carinae, clypeus, mandibles, antennae and alitrunk. All known *Karavaivia* species originate from the Indo-Malayan area, in particular from Malaysia and Singapore. A possibly common behavior of all *Karavaivia* species is the weaving of silk nests on the undersides of leaves which, however, has only been investigated for *C. texens* and *C. gombaki* (Maschwitz et al., 1985). For *C. overbecki*, there is only the statement of Viehmeyer (1915) that Overbeck found workers and males in 'carton nests' on the underside of leaves. Nothing has become known so far, however, on the nest-building of *C. dolichoderoides* and *C. exsectus*.

My examination of two workers and a male of *C. texens* and of two workers of *C. gombaki* showed no openings of metapleural glands. This is in accordance with the observations in all weaver ants studied by Hölldobler and Engel-Siegel (1984).

The two species described by Forel (1911) as *C. horrens* and *C. moeschi*, found on the Philippines, were assigned by Forel (1911) to the same group as *C. dolichoderoides*, and also Chapman and Capco (1951) classified *C. horrens* in the subgenus *Karavaievia*. Emery (1925), on the other hand, classified *C. moeschi* in the subgenus *Myrmamblys* and *C. horrens* in the subgenus *Colobopsis*; in the latter case, however, Emery was not quite sure, because neither soldiers nor females of this species had been found. *C. horrens* and *C. moeschi* definitely do not belong to the subgenus *Karavaievia*. This is supported in the case of *C. horrens* by the carinated and twice-excised anterior clypeal margin of the workers, the strongly divergent frontal carinae and the position of the eyes in the posterior fourth of the head. Features against *C. moeschi* as a member of the subgenus *Karavaievia* are the notched clypeus, lobed in the anterior part; the elongated head, convex in the occipital part; position of the eyes at the posterior third of the head, and the weakly impressed metanotal groove.

The differences between workers of the *Karavaievia* species are in coloration, sculpture and pubescence, slight differences in the shape of the frontal carinae, differences in size of head and eyes, and in shape and size of propodeum. A broader comparison of the *Karavaievia* sexuals, however, is not yet possible, because females of only 3 species and males of 2 species are known. *Karavaievia* workers are dirty yellow and brown, from reddish brown to blackish brown; in most cases, the front of the head, the apical flagellar segments and the tarsi are of a uniform color, which differs from the color of the rest of the body.

Key to the species of *Karavaievia*

Workers

1. Head and alitrunk shining and covered with erect hairs. 2
 Head and alitrunk opaque and only sparsely covered with erect hairs 3
2. Uniformly dirty yellow, anterior parts of head and gaster lighter. Gaster with darker segment borders. Frontal carinae straight and diverging *C. exsectus*
 Head, alitrunk and legs reddish brown, gaster blackish brown with lighter brown segment borders. Apical antennal flagellum

- and front of head yellow. Frontal carinae weakly sinuate
 *C. overbecki*
3. Propodeal profile arched, dorsal and descending parts almost straight, forming an angle of about 90°. Uniformly dirty yellowish brown; tarsi, apical antennal flagellum and front of head reddish *C. dolichoderoides*
 Propodeal profile rounded 4
4. Propodeum higher than promesonotum. HW 1.35–1.51, HL 1.31–1.47, OD 0.24–0.28 HW. Head, alitrunk, scapes and legs dark brown; gaster, petiole, apical antennal flagellum and front of head dirty yellow *C. texens*
 Propodeum lower than promesonotum. HW 1.44–1.72, HL 1.40–1.62, OD 0.22–0.26 HW. Head and alitrunk reddish brown at base, and darker brown in upper half. Head and alitrunk opaque and densely punctured *C. gombaki*

Females

1. Petiolar scale blunt in dorsal view *C. exsectus*
 Petiolar scale acute in dorsal view 2
2. Head, alitrunk, petiole and legs reddish brown, gaster, antennae and mandibles dark brown. Frontal area clearly delimited and more shining than the surroundings. Gaster opaque. OD 0.54–0.62, or 0.24–0.25 HW *C. gombaki*
 Head and alitrunk black, tergites of gaster dark brown, sternites brown. Frontal area clearly delimited. Gaster shining. OD 0.69 or 0.28–0.31 HW *C. texens*

Males

1. Color on the whole dirty yellowish brown with indistinct narrow bands in front of the posterior segment borders
 *C. overbecki*
 Head and alitrunk dark brown like scapes and legs; petiole and gaster lighter. Antennal flagellum yellowish brown
 *C. gombaki*

SUMMARY

Two new silk nest weaving species, *Camponotus texens* and *Camponotus gombaki*, are described as members of the subgenus *Karavaievia* Emery 1925. The subgenus now consists of five species, which are probably all weaver ants. Additionally, a key to the species of *Karavaievia* is presented.

REFERENCES

- BOLTON, B.
1977. The ant tribe Tetramoriini (Hymenoptera: Formicidae). The genus *Tetramorium* Mayr in the Oriental and Indo-Australian regions, and in Australia. Bull. Brit. Mus. (Nat. Hist.), Ent., **36**(2): 67-151.
- CHAPMAN, J. W. & S. R. CAPCO
1951. Check list of the ants (Hymenoptera: Formicidae) of Asia. Manila Bureau of Printing.
- EMERY, C.
1901. Formiche raccolte da elio Modigliana in Sumatra, Engano e Mentawai. Ann. Mus. Stor. Nat. Genova, **40**: 709-743.
1925. Hymenoptera, Fam. Formicidae. P. Wytman, ed. Genera Insectorum, Louis Desmet-Verteneuil, Brussels.
- FOREL, A.
1911a. Fourmis de Borneo, Singapore, Ceylon, etc. Rev. Suisse Zool. **19**: 23-62.
1911b. Fourmis des Philippines. Philip. Journ. Sci. **5**(D): 121-130.
- HÖLDOBLER, BERT & HILTRUD ENGEL-SIEGEL
1984. On the metapleural gland of ants. Psyche, **91**: 201-224.
- MASCHWITZ, U., K. DUMPERT, & G. SCHMIDT
1985. Silk pavilions of the two *Camponotus* (*Karavaievia*) species from Malaysia: description of a new nesting type in ants (Formicidae, Formicinae). Z. Tierpsych, **69**: 237-249.
- VIEHMEYER, H.
1915. Ameisen von Singapore, beobachtet und gesammelt von H. Overbeck, beschrieben von H. Viehmeyer. Arch. Naturgesch. **81**: 108-169.